Chapter 7
Applications, Requirements, Architectures, Security Issues and Emerging Motivation for Smarter Healthcare

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ABSTRACT

The healthcare industry has witnessed significant advancements in recent years, driven

by the integration of technology and data analytics. Smarter healthcare systems aim to enhance the quality of patient care, improve efficiency, and reduce costs through the intelligent use of technology. This chapter explores existing models, proposes a new model, discusses the requirements and architectures for smarter healthcare systems, addresses security issues, and highlights the emerging motivations for adopting these solutions. One prominent model is the electronic health record (EHR) system, which enables the digital storage and sharing of patient medical records. Additionally, wearable devices and mobile health applications empower individuals to track their health, collect data, and receive personalized insights. A proposed model for smarter healthcare is the integration of artificial intelligence (AI) and machine learning (ML) algorithms. These technologies can analyze vast amounts of medical data, identify patterns, and provide accurate predictions and diagnoses.

INTRODUCTION

The population is growing at an exponential rate, making urbanization more challenging. Because of this, management of the following sectors is crucial: education, transportation, energy, healthcare, etc. Better administrative decision-making and implementation involve transparency, reliability, optimization, and monitoring.

Within a short period of time, healthcare technology has improved. In particular for communities, adult healthcare is crucial. For the community's older residents, Tomita et al. (2010) suggested integrating healthcare with smart homes. This method takes care of all the healthcare resources for older persons who remain at home. A sensor-enabled strategy for remote health condition monitoring was proposed by Aziz et al. (2016). Remote data transmission is possible with wireless sensors that assess temperature and blood pressure. The concerned medical professionals and teams can then review the information to look for ways to prevent sickness. The doctor will be informed right away if the data collected exceeds the worrying level. The healthcare study on disease detection was analyzed by Chui et al. (2017).

Technological advancements appear to be changing the healthcare. With the help of artificial intelligence and big data analysis heath care systems provide effective services in smart cities. The human condition necessitates the provision of healthcare. To facilitate the assessment of a patient's health, sensor-enabled IoT devices can be utilized. These devices can be used to analyze the patient's heart-bit rate and blood pressure value, as well as their oxygen saturation levels. Historical patient information can aid in a precise diagnosis. The location of doctors and nurses can be determined using sensors and paging devices, which can aid in the dispatch of emergency medical teams. Data generated by sophisticated medical and healthcare

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